UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

DECEMBER 1969

PART II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

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SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN
DECEMBER 1969

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Charts

Figure 1.--Mean sea surface temperature (° F) derived from approximately 8000 observations. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 2.--Deviation of sea surface temperatures (° F) from long term charts of H. O. 225. Hatched areas are colder in 1969.

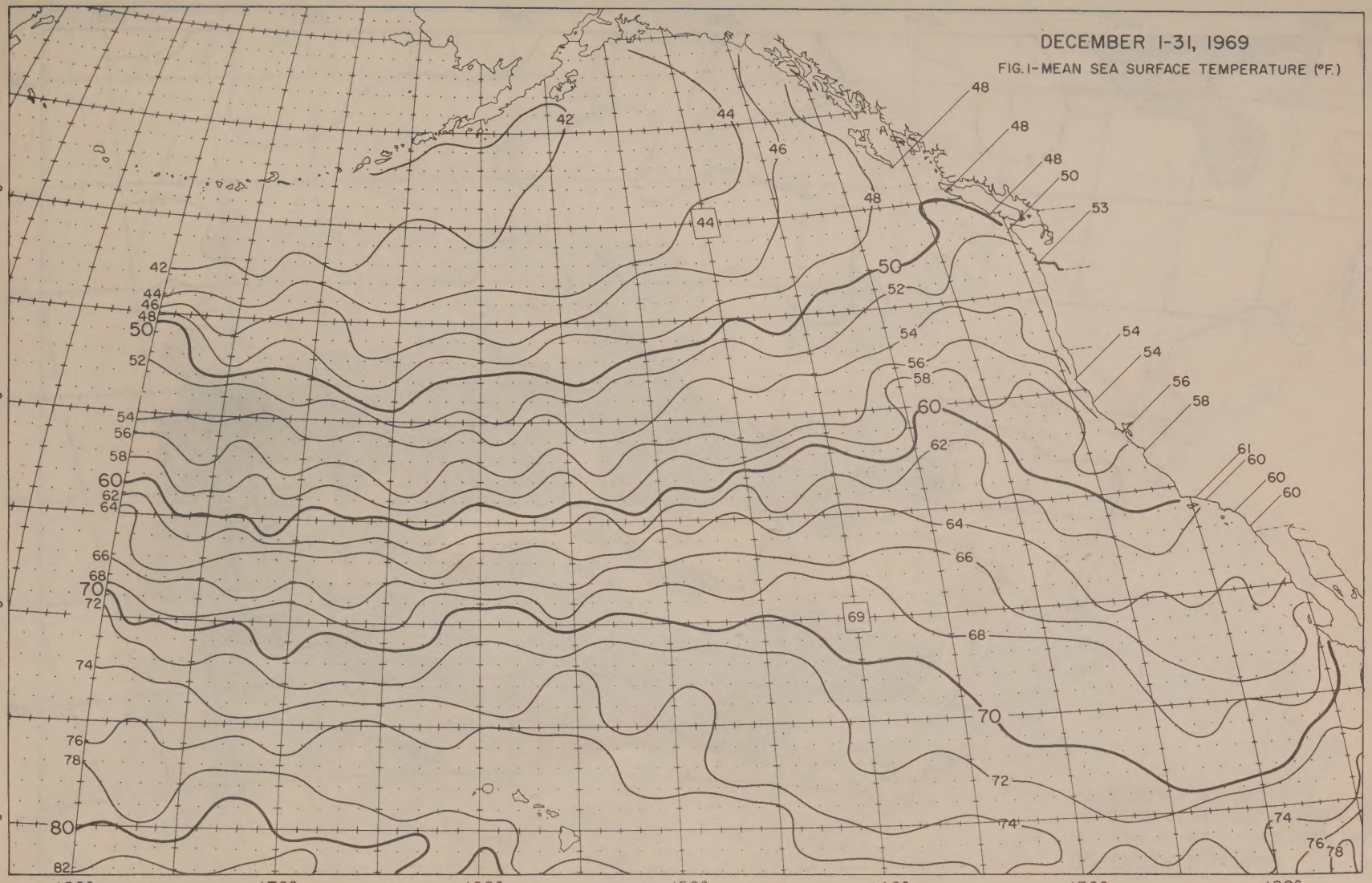
Figure 3.--Deviation of sea surface temperatures (° F) from those of December 1968. Hatched areas are colder in 1969.

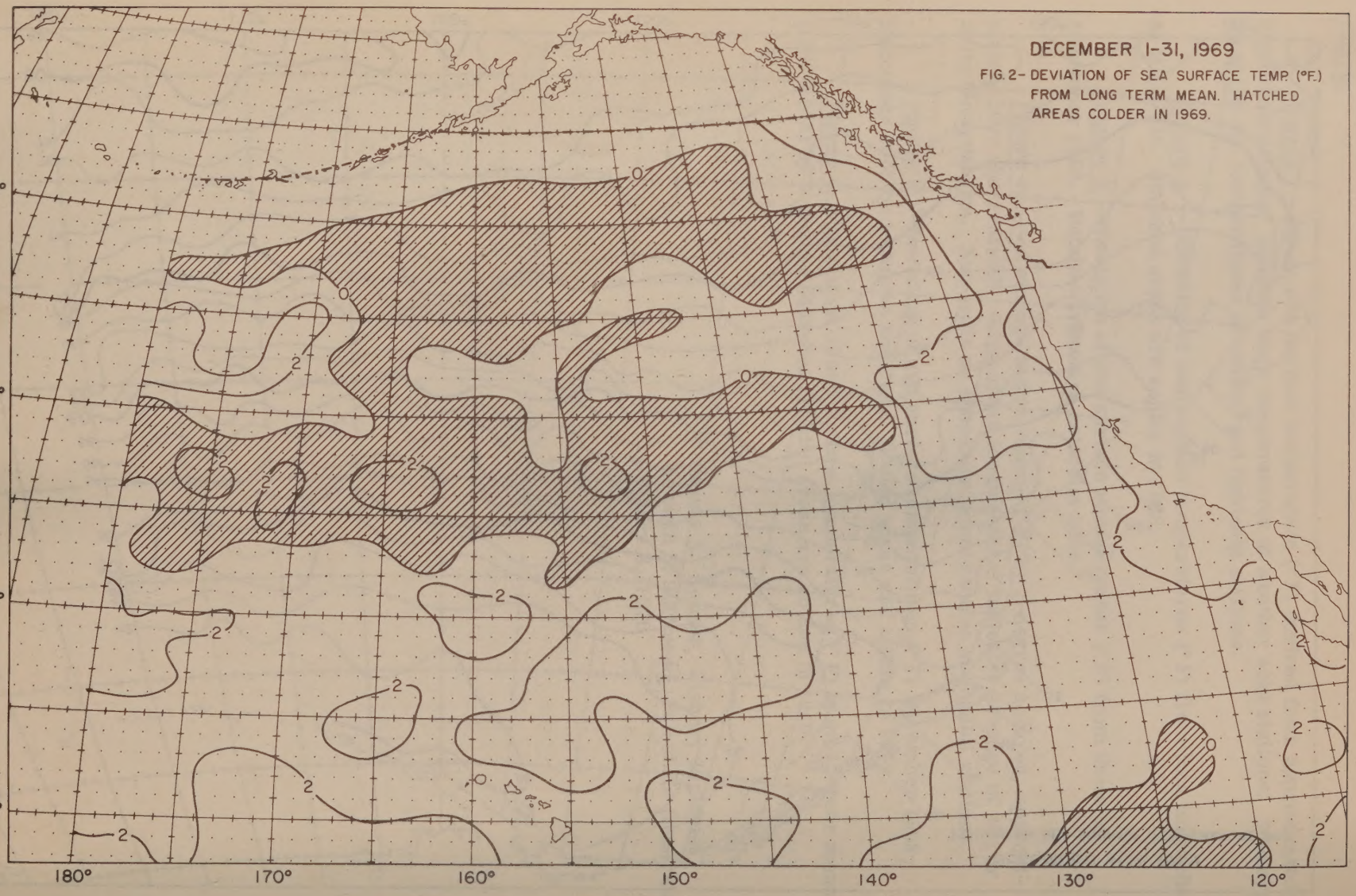
Figure 4.--Sea surface temperatures (° F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

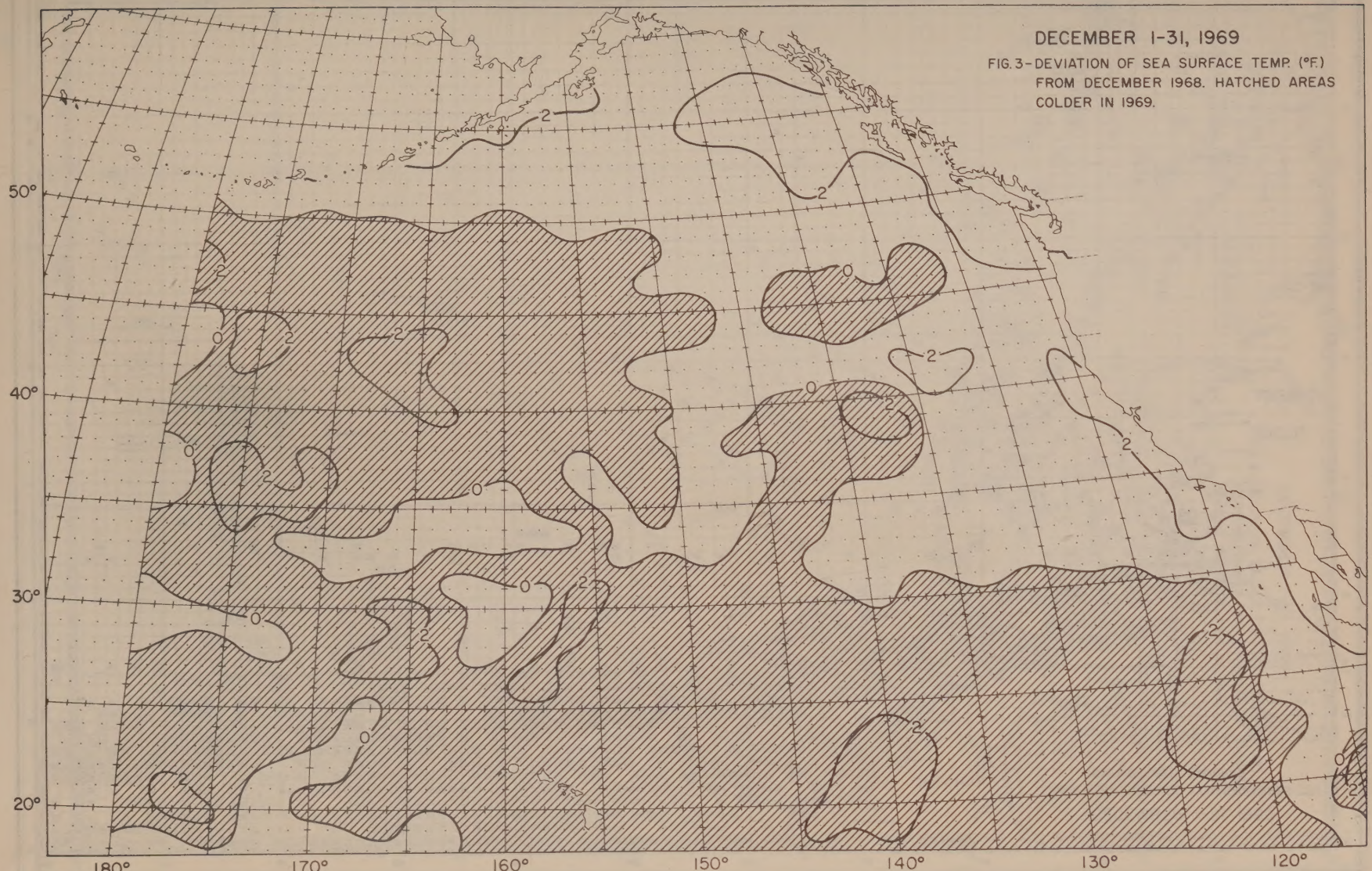
Figure 5.--Deviation of sea surface temperatures (° F) December 1969-December 1968 by 1-degree squares. Shaded areas are colder in 1969.

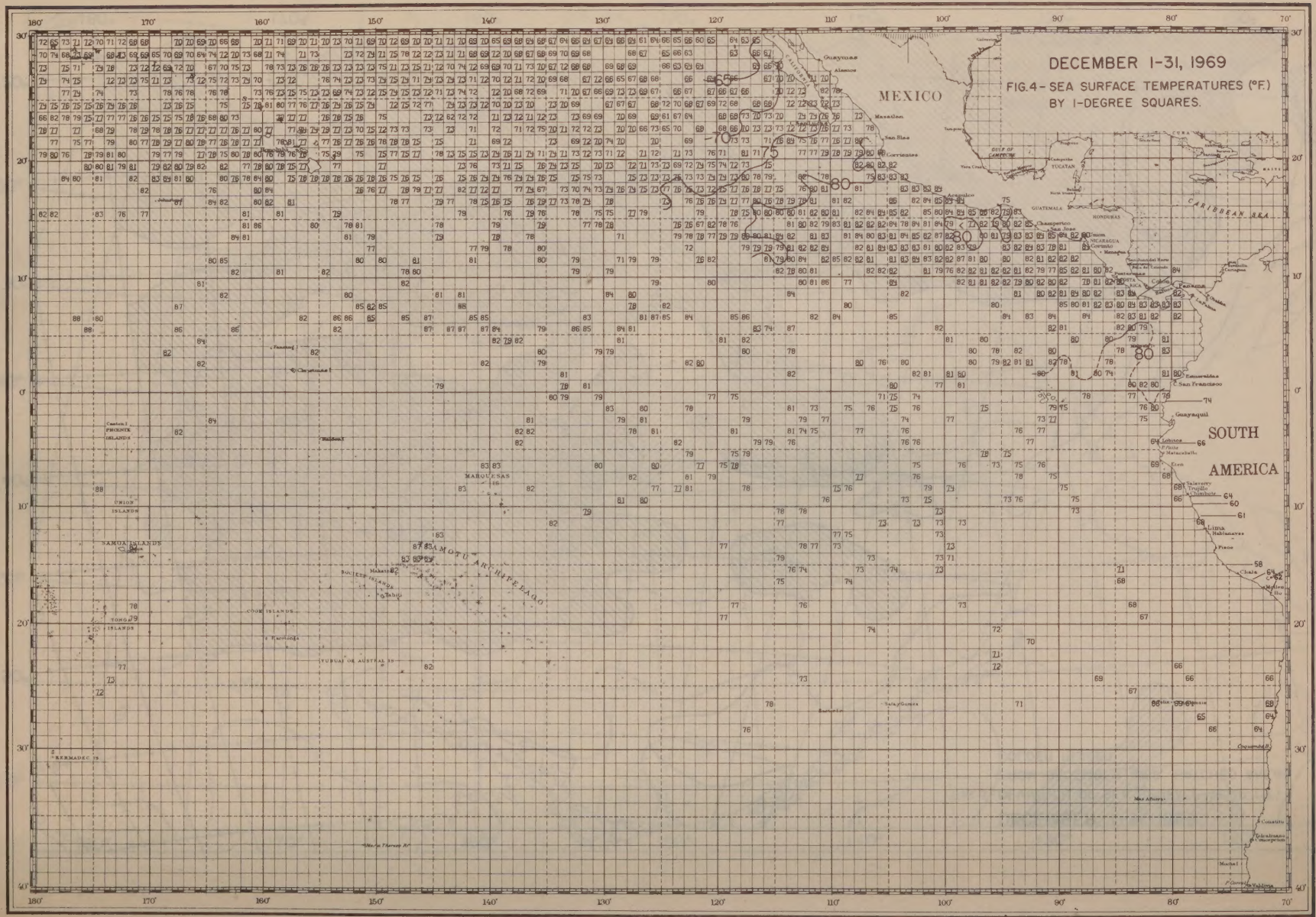
Figure 6.--Deviation of sea surface temperatures (° F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder in 1969.

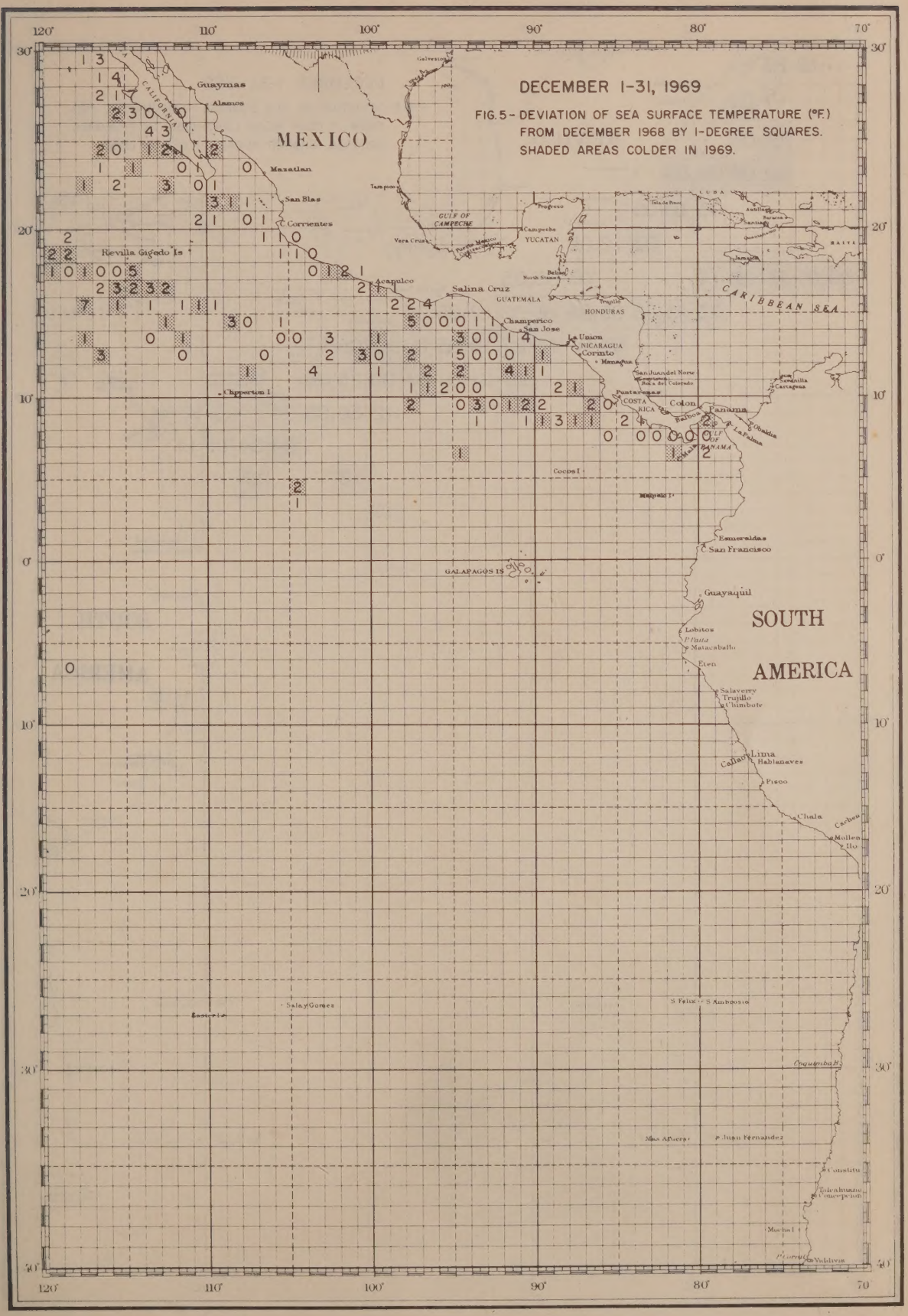
James A. Renner, Fishery Biologist
Kenneth S. Raymond, Scientific Illustrator
January 8, 1970

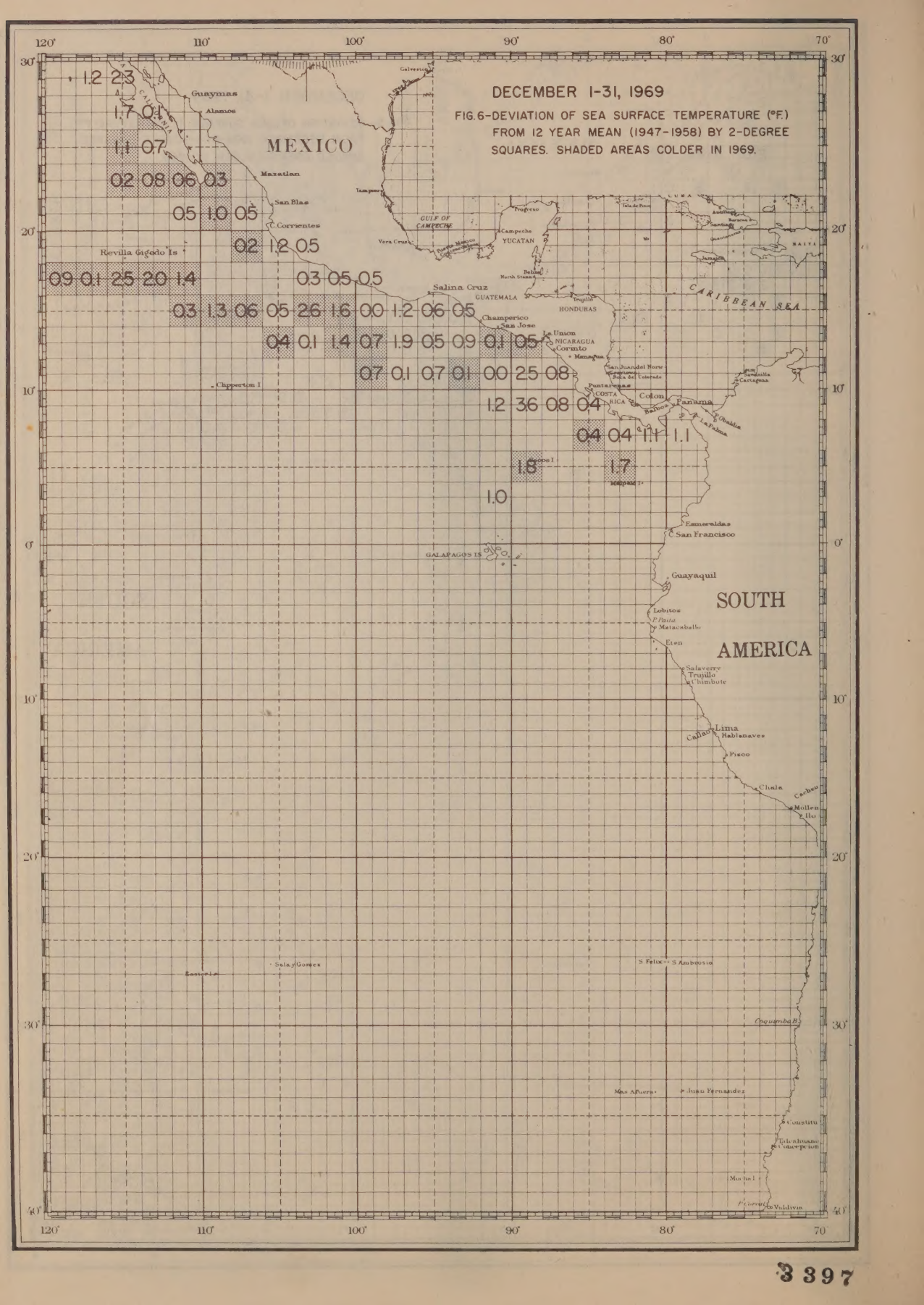

DECEMBER 1-31, 1969
FIG. 1- MEAN SEA SURFACE TEMPERATURE (°F.)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
53
61
69


DECEMBER 1-31, 1969
FIG. 2- DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1969.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2


DECEMBER 1-31, 1969
FIG. 3 - DEVIATION OF SEA SURFACE TEMP. (°F.) FROM DECEMBER 1968. HATCHED AREAS COLDER IN 1969.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
2
0
-2


DECEMBER 1-31, 1969
FIG.4 - SEA SURFACE TEMPERATURES (°F.)
BY 1-DEGREE SQUARES.
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
Guaymas
Mazatlan
San Blas
Manzanillo
TUCATAN
Acapulco
Champerico
San Jose
Corinto
Managua
Cristobal
Cartagena
Panama
Balboa
Guayaquil
San Francisco
Esmeraldas
Callao
Lima
Pisco
Chala
Mollendo
Arica
Iquique
Antofagasta
Valparaiso
Talcahuano
Concepcion
Coquimbo
Mocha I.
Juan Fernandez Is.
Robinson Crusoe I.
Easter I.
PHOENIX ISLANDS
UNION ISLANDS
SAMOA ISLANDS
TONGA ISLANDS
COOK ISLANDS
SOCIETY ISLANDS
Tahiti
Makatea
TUAMOTU ARCHIPELAGO
MARQUESAS
KERMADEC IS.
Galapagos Is.
Malpelo I.
Gorgona I.
Gallo I.
Tumaco
Buenaventura
Isla Gorgona
Isla Gallo
Isla Malpelo
Isla Malpelo
Isla Tumaco
Isla Buenaventura
Isla Gorgona
Isla Gall


DECEMBER 1-31, 1969
FIG. 5 - DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM DECEMBER 1968 BY 1-DEGREE SQUARES. SHADED AREAS COLDER IN 1969.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
YUCATAN
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
Champerico
San Jose
La Union
Corinto
Managua
Sanjuandel Norte
Puntarenas
Colon
Panama
Esmeraldas
San Francisco
Guayaquil
Lobitos
Eten
Salaverry
Trujillo
Chimbote
Callao
Lima
Hablaneves
Pisco
Chala
Mollendo
Salay Gomez
S Felix
S Ambrosio
Juan Fernandez
Valdivia
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°


DECEMBER 1-31, 1969
FIG.6-DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM 12 YEAR MEAN (1947-1958) BY 2-DEGREE SQUARES. SHADED AREAS COLDER IN 1969.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Salina Cruz
Champerico
San Jose
Guayaquil
Lima
Callao
Pisco
Chala
Salaverry
Trujillo
Chimbote
Eten
Lobitos
Paita
Malacanballo
Esmeraldas
San Francisco
Colon
Panama
Cartagena
Jamaica
HAITI
Progreso
Campeche
Veracruz
Tampico
Galveston
Belize
Tela de Pesc
Trujillo
Puntarenas
Chipperton I
Revilla Gigedo Is
Sala y Gomez
S. Felix
S. Ambrosio
Juan Fernandez
Mas Afuera
Valparaiso
Talcahuano
Concepcion
Corral
Valdivia
Chiloe
Arauco
Mocha I
Easter I
1.2 2.3
1.7 0.4
1.1 0.7
0.2 0.8 0.6 0.3
0.5 1.0 0.5
0.2 1.2 0.5
0.9 0.1 2.5 2.0 1.4
0.3 0.5 0.5
0.3 1.3 0.6 0.5 2.6 1.6 0.0 1.2 0.6 0.5
0.4 0.1 1.4 0.7 1.9 0.5 0.9 0.1 0.5
0.7 0.1 0.7 0.1 0.0 2.5 0.8
1.2 3.6 0.8 0.4
0.4 0.4 1.1 1.1
1.8
1.7
1.0
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°

3397